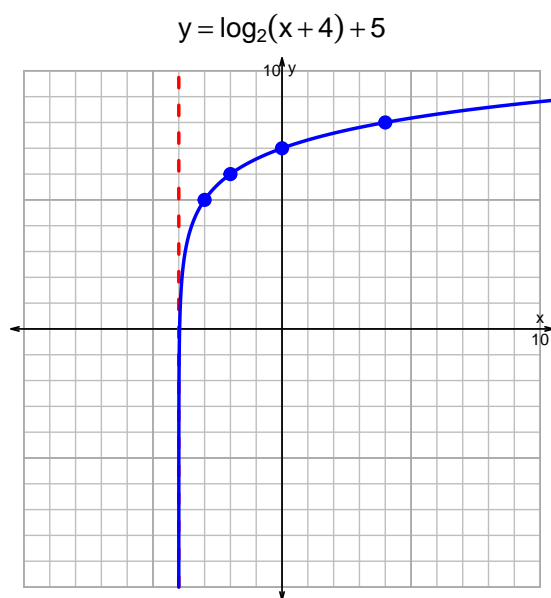
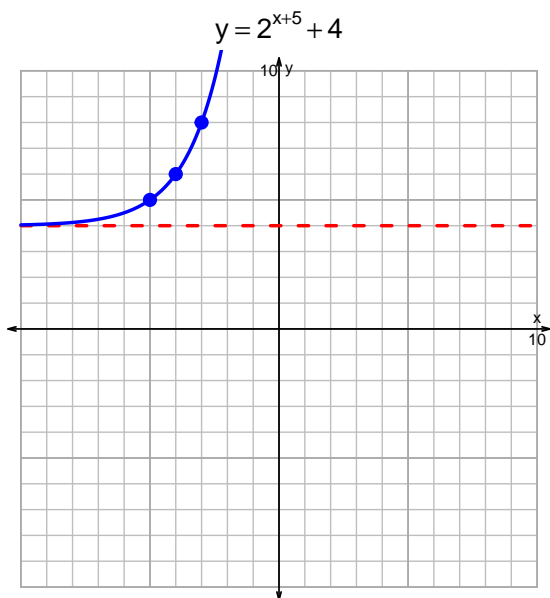


Name: _____

Date: _____

s18QUIZ: EXP LOG (SOLUTION v117)

1. Graph $y = 2^{x+5} + 4$ and $y = \log_2(x + 4) + 5$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$19 = \left(\frac{4}{3}\right) \cdot 2^{7t/5}$$

Divide both sides by $\frac{4}{3}$.

$$\frac{19 \cdot 3}{4} = 2^{7t/5}$$

Take log, base 2, of both sides.

$$\log_2 \left(\frac{19 \cdot 3}{4} \right) = \frac{7t}{5}$$

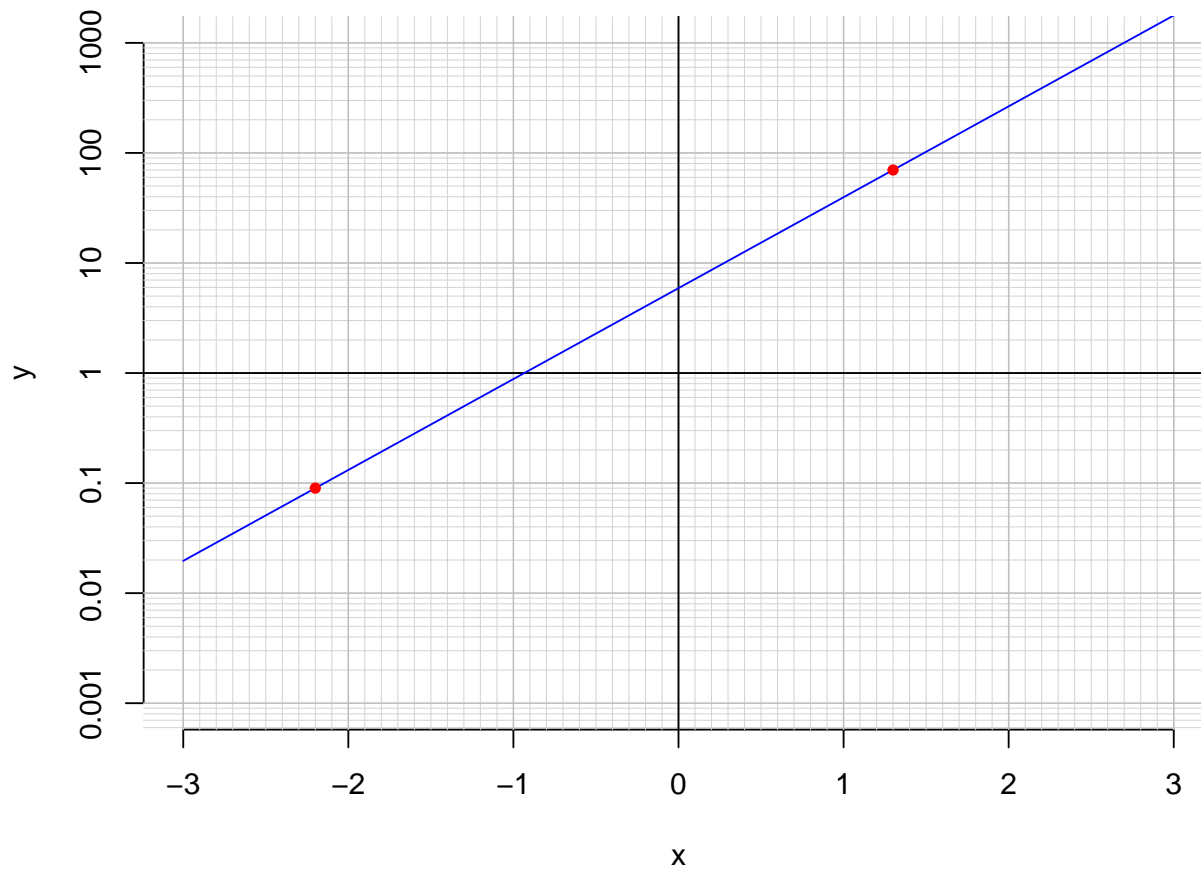
Divide both sides by $\frac{7}{5}$.

$$\frac{5}{7} \cdot \log_2 \left(\frac{19 \cdot 3}{4} \right) = t$$

Switch sides.

$$t = \frac{5}{7} \cdot \log_2 \left(\frac{19 \cdot 3}{4} \right)$$

3. An exponential function $f(x) = 5.91 \cdot e^{1.9x}$ is graphed below on a semi-log plot.



- a. Using the plot above, evaluate $f(-2.2)$.

$$f(-2.2) = 0.09$$

- b. Express $f^{-1}(x)$, the inverse of f .

$$f^{-1}(x) = \frac{1}{1.9} \cdot \ln\left(\frac{x}{5.91}\right)$$

- c. Using the plot above, evaluate $f^{-1}(70)$.

$$f^{-1}(70) = 1.3$$